

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

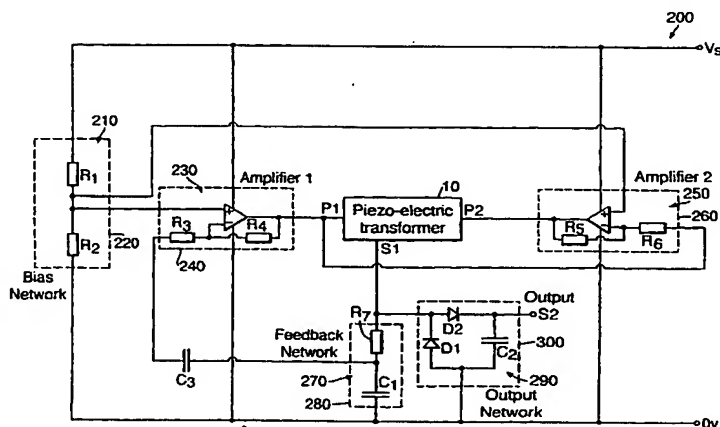
(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
4 January 2001 (04.01.2001)

PCT

(10) International Publication Number
WO 01/01500 A1

- (51) International Patent Classification⁷: H01L 41/107
- (21) International Application Number: PCT/GB00/02418
- (22) International Filing Date: 22 June 2000 (22.06.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
9914516.1 23 June 1999 (23.06.1999) GB
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- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:
— With international search report.
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PIEZO-ELECTRIC TRANSFORMER CIRCUIT



(57) Abstract: The invention relates to a piezo-electric transformer circuit (200) incorporating a piezo-electric transformer (10) comprising a multi-element primary region (12) and a single element secondary region (14) mutually joined together. In operation, the circuit (200) applies a drive signal to the primary region (12) to excite the primary and secondary regions (12, 14) into longitudinal resonance, thereby generating a high potential signal at the secondary region (14) in a self oscillating feedback loop configuration. The drive signal is derived from the signal at the secondary region (14) in a self oscillating feedback loop configuration. The transformer (10) is fabricated from a hard piezo-electric ceramic material having a dielectric loss of substantially 0.005 or less at 1 kHz. Although such a hard ceramic does not provide as high a charge coefficient as softer piezo-electric ceramic materials, it is found that hard ceramics provide surprisingly improved energy conversion when used in piezo-electric transformer power supplies.

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